Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for transposing data in a plurality of processing elements, comprising:

a plurality of shifting operations; and

a plurality of storing operations, said shifting and storing operations coordinated to enable data to be ~~stored along~~ collected in a diagonal of processing elements from at least one first direction and to be output from said processing elements located in said diagonal in at least one second direction perpendicular to said first direction, and wherein said plurality of storing operations is responsive to ~~the~~ a processing element's position.

2. (currently amended) The method of claim 1 wherein said plurality of storing operations are responsive to initial counts each based on a processing element's position, said initial counts being ~~which are~~ one of loaded into at least certain of said processing elements ~~and~~ or calculated locally ~~based on the processing element's location~~.

3. (original) The method of claim 2 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and the number of data shifts performed.

4. (original) The method of claim 3 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

5. (original) The method of claim 4 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

6. (original) The method of claim 5 wherein a storing operation is performed when a current count in a processing element is nonpositive.

7. (original) The method of claim 1 wherein the first and second directions are selected from among the x, z and y directions.

8. (currently amended) A method for transposing data in a plurality of processing elements, comprising:

a first plurality of shifting and storing operations coordinated to enable data to be collected from along a first direction and stored along a second direction perpendicular to said first direction; and

a second plurality of shifting and storing operations coordinated to enable data to be collected from along a third direction opposite to said first direction and stored along a fourth direction opposite to said second direction, and wherein said first and second plurality of storing operations is responsive to ~~the~~ a processing element's position.

9. (currently amended) The method of claim 8 wherein said first and second plurality of storing operations are responsive to initial counts each based on a processing element's position, said initial counts being ~~which are~~ one of loaded into at least certain of said processing elements ~~and~~ or calculated locally ~~based on the processing element's location~~.

10. (currently amended) The method of claim 9 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and ~~the~~ a number of data shifts performed.

11. (original) The method of claim 10 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

12. (original) The method of claim 11 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

13. (original) The method of claim 12 wherein a processing element performs a storing operation when its current count is nonpositive.

14. (original) The method of claim 8 wherein the plurality of processing elements is arranged in an array, and wherein said first and second directions and the third and fourth directions are selected from among the dimensions of the array including the +x/-x, +z/-z and +y/-y pairs of directions.

15. (currently amended) A method for transposing data in a plurality of processing elements, comprising:

a first shifting of data in a first direction;

a first storing of data along a diagonal of processing elements in response to said first shifting;

a second shifting of data from said diagonal so as to output the stored data from said diagonal, said second shifting being in a second direction perpendicular to said first direction;

a second storing of data by at least certain of said processing elements in response to said second shifting and in response to ~~the~~ a processing element's position;

a third shifting of data in a third direction opposite to said first direction;

a third storing of data along said diagonal in response to said third shifting;

a fourth shifting of data from said diagonal so as to output the data stored in response to said third shifting, said fourth shifting of data being in a fourth direction opposite to said second direction; and

a fourth storing of data by at least certain other of said processing elements in response to said fourth shifting and in response to ~~the~~ a processing element's position.

16. (currently amended) The method of claim 15 wherein said first, second, third and fourth storing are each responsive to initial counts each based on a processing element's position, said initial counts being ~~which are~~ one of loaded into at least certain of said processing elements ~~and~~ or calculated locally ~~based on the processing element's location~~.

17. (currently amended) The method of claim 16 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and ~~the~~ a number of data shifts performed.

18. (original) The method of claim 17 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

19. (original) The method of claim 18 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

20. (original) The method of claim 19 wherein said first, second, third and fourth storing are each responsive to current counts.

21. (original) The method of claim 15 wherein the plurality of processing elements is arranged in an array and wherein the first and second directions and the third and fourth directions are selected from among the dimensions of the array including the +x/-x, +z/-z and +y/-y pairs of directions.

22. (currently amended) A method for transposing data in a plurality of processing elements, comprising:

a plurality of shifting and storing operations coordinated to enable data to be collected from along a first direction and stored along a second direction perpendicular to said first direction, and wherein said plurality of storing operations is responsive to ~~the~~ a processing element's position.

23. (currently amended) The method of claim 22 wherein said plurality of storing operations are responsive to initial counts each based on a processing element's position, said initial counts being ~~which are~~ one of loaded into at least certain of said processing elements ~~and~~ or calculated locally based on the processing element's location.

24. (currently amended) The method of claim 23 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and ~~the~~ a number of data shifts performed.

25. (original) The method of claim 24 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

26. (original) The method of claim 25 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

27. (original) The method of claim 26 wherein a processing element performs a storing operation when its current count is nonpositive.

28. (original) The method of claim 22 wherein the plurality of processing elements is arranged in an array, and wherein the first and second directions are selected from among the dimensions of the array including the x, z and y directions.

29. (currently amended) A method for transposing data in a plurality of processing elements, comprising:

a first shifting of data in a first direction;

a first storing of data along a diagonal of processing elements in response to said first shifting;

a second shifting of data from said diagonal so as to output the stored data from said diagonal, said second shifting being in a second direction perpendicular to said first direction; and

a second storing of data by at least certain of said processing elements in response to said second shifting and in response to ~~the~~ a processing element's position.

30. (currently amended) The method of claim 29 wherein said first and second storing are each responsive to initial counts each based on a processing element's position, said initial counts being ~~which are~~ one of loaded into at least certain of said processing elements ~~and~~ or calculated locally based on the processing element's location.

31. (currently amended) The method of claim 30 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and ~~the~~ a number of data shifts performed.

32. (original) The method of claim 31 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

33. (original) The method of claim 32 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

34. (original) The method of claim 33 wherein said first and second storing are each responsive to current counts.

35. (original) The method of claim 29 wherein the plurality of processing elements is arranged in an array and wherein the first and second directions are selected from among the dimensions of the array including the x, z and y directions.

36. (currently amended) A computer readable memory device carrying a set of instructions which, when executed, perform a method comprising:

a plurality of shifting operations; and

a plurality of storing operations, said shifting and storing operations coordinated to enable data to be ~~stored along~~ collected in a diagonal of processing elements from at least one first direction and to be output from said processing elements located in said diagonal in at least one second direction perpendicular to said first direction, and wherein said plurality of storing operations is responsive to ~~the~~ a processing element's position.